Received: 5th August 2013 Accepted: 29th December 2013 Conflict of Interest: None

Source of Support: Nil

Original Research

Prevalence of gingival enlargement in Karnataka school going children

K Bala Krishna[1], P Krishnam Raju[2], Radha Raani Chitturi[3], G Smitha[4], S Vijai[5], B V V Srinivas[6]

Contributors:

[1]Reader, Department of Pedodontics & Preventive Dentistry, Lenora Dental College, Rajamundry, Andhra Pradesh, India; [2]Reader, Department of Pedodontics & Preventive Dentistry, Sri Sai Dental College, Srikakulam, Andhra Pradesh, India; [3]Professor, Department of Pedodontics & Preventive Dentistry, Githam Dental College, Vishakapatna, Andhra Pradesh, India; [4]Lecturer, Department of Oral Pathology & Microbiology, Rajarajeswari Dental College, Bangalore, Karnataka, India; [5]Reader, Department of Pedodontics & Preventive Dentistry, Sri Arabind Dental College, Indore. Madhya Pradesh, India; [6]Reader, Department of Periodontics, Sri Sai Dental College, Srikakulam, Andhra Pradesh, India.

Correspondence:

Dr. Raju PK. Department of Pedodontics & Preventive Dentistry, Sri Sai Dental College, Srikakulam, Andhra Pradesh, India. Email: doc_krishnamraju@yahoo.com

How to cite the article:

Krishna KB, Raju PK, Chitturi RR, Smitha G, Vijai S, Srinivas BV. Prevalence of gingival enlargement in Karnataka school going children. J Int Oral Health 2014;6(1):106-10.

Abstract:

Background: Periodontal diseases affect more people all over the world than dental caries. Increase in size of gingiva is known as gingival hyperplasia or gingival enlargement. Gingival swelling is almost universally the result of Fluid accumulation within the tissues. Enlargement and even aesthetically disfiguring over growth of the gingival tissue, is also a common finding of leukemia, scurvy and subjects undergoing the hormonal changes of puberty, pregnancy, menopause and drugs.

Materials & Methods: A sample size of 1500 was taken. All children who were between the chronological age of 5-12 years from selected schools were included in the study.Three age groups were selected for the study, Group I: 5-7yrs, Group II: 7-9 yrs, Group III 9-12yrs. Each group comprised of 500 students. The examination of gingival enlargement was made according to Gingival Enlargement Index. The oral hygiene status of the child was examined using Oral Hygiene Index-Simplified.

Results: The prevalence of Gingival Enlargement increased with the increase of age. Though the Prevalence of GE in female children (15.1%) was more than male children (13.4%), it was not statistically significant. Female children (1.6%) had a higher prevalence of epilepsy than male children (0.29%) in this present study.

Conclusion: The prevalence of gingival enlargement was predominantly inflammatory, showing that the oral hygiene status of the oral Children in Karnataka was far from satisfactory. Further studies need to be undertaken regarding the prevalence if GE in School going children.

Key Words: Epilepsy, gingival enlargement, oral hygiene

Introduction

Periodontal diseases affect more people all over the world than dental caries. They are among the endemic human diseases of our planet. All cultures Exhibit some form and distribution of these diseases. Diet, genetics, personal oral Hygiene, social customs, group (public) preventive services as well as personal dental preventive, diagnostic and therapeutic services all influence the extent, severity and course of these diseases. It is known that some systemic diseases can complicate Periodontal diseases.[1] The mouth is a window of health and gingival is an index of a person's oral hygiene.[2]

Increase in size of gingiva is known as gingival hyperplasia or gingival enlargement. Although not life threatening; clinically apparent enlargement of the papillary and marginal gingivae is a common finding in otherwise healthy humans and other mammals. Swelling (tumour) is one of the cardinal Signs of inflammation. Gingival swelling is almost universally the result of Fluid accumulation within the tissues (oedema).[3]

Enlargement and even aesthetically disfiguring over growth of the gingival tissue, is also a common finding of leukaemia, scurvy and subjects undergoing the hormonal changes of puberty, pregnancy, menopause and drugs. Familial Gingival fibromatosis of undeciphered aetiology and indeterminate genetic base has also been reported and widely discussed. Such lesions, probably due to their rare occurrence, innocuous nature, have never endangered any substantive investigative zeal within the scientific community or for that matter, even rarer gingival lesions that commonly accompany lipid storage disorders such as tangier's diseases.

Objective

To find out the prevalence of gingival enlargement in the Karnataka school going children in the age group of 5-12 years.

Methodology

A sample size of 1500 was taken. All children who were between the chronological age of 5-12 years from selected schools were included in the study.

Three age groups were selected for the study;

1. Group I 5-7 years
2. Group II 7-9 years
3. Group III 9-12years

Each group comprised of 500 students.

The examination of gingival enlargement was made according to Gingival Enlargement Index.[4]

The oral hygiene status of the child was examined using Oral Hygiene Index-Simplified.[5]

The ohi-s has two components, the simplified debris index (di-s) and the Simplified calculus index (ci-s)

Results

A sample of 1500 school going children was taken in the study.

Table 1 represents oral hygiene status among study population.

In the Ist Group out of 500 school children examined 367 children had a score Between 1.3-3.0 (fair), 123 children had a score between 0-1.2 (good) and 10 Children had a score between 3.1-6.0 (poor) respectively.

Table 1: Oral hygiene status among study population.

Groups	Age	Sex	OHI-S			Total
	Years		Good	Fair	Poor	
I	5-7	M	48	168	1	217
		F	75	199	9	283
		T	123	367	10	500
II	7-9	M	122	121	19	262
		F	92	131	15	238
		T	214	252	34	500
III	9-12	M	111	83	14	208
		F	139	140	13	292
		T	250	223	27	500
	Total	M	281	372	34	687
		F	306	470	37	813
Overall Total			**581**	**842**	**71**	**1500**
			(39.1%)	**(56.1%)**	**(4.7%)**	

Table 2: Gingival enlargement scores using GE index in different age Groups.

Groups	Age	Sex	GEI			GE	Total
	Years		0	I	II	I+II	
I	5-7	M	212	5	-		217
		F	261	21	1		283
		T	473	26	1	27	500
						5.40%	
II	7-9	M	224	37	1		262
		F	205	31	2		238
		T	429	68	3	71	500
						14.20%	
III	9-12	M	159	40	9		208
		F	224	57	11		292
		T	383	97	20	117	500
						23.40%	
	Total	M	595	82	10	92	687
			(86.6%)	(11.9%)	(1.5%)	13.40%	
		F	690	109	14	123	813
			(84.9%)	(13.4%)	(1.7%)	15.10%	
Grand Total			**1285**	**191**	**24**	**215**	**1500**
			(85.7%)	**(12.7%)**	**(1.6%)**	**14.50%**	

In the IInd Group out of 500 school children examined 252 children had a score between 1.3-3.0 (fair), 214 children had a score between 0-12 (good) and 34 Children had a score between 3.1-6.0 (poor) accordingly.

In the IIIrd Group out of 500 children examined 372 children had a score between 1.3-3.0 (fair) and 281 children had a score between 0-1.2 (good) and 34 Children had a score between 3.1-6.0 (poor).

On the whole the table shows that a majority of the children in the sample had a relatively fair oral hygiene status comprising 56.1% of the total sample.

Table 2 shows the gingival enlargement scores using GE index in different age Groups.

In Group I, 212 male children had a score of '0', 5 had a score of 1, and 261 Female children had a score of '0' and 26 had a score of '1' and one female child had a score of '2'.

In Group II, 224 male children had a score of '0' 37 had a score of 1 and one child had a score of 2, whereas in female children 205 had a score of '0', 31 had a score of 1 and 3 had a score of 2.

In Group III, 159 male children had a score of '0', 40 had a score of '1' and 9 had a score of 2. in the female children 224 had a score of '0' 57 had a score of 1 And 12 had a score of '2'. Prevalence of gingival enlargement increased with increase of age. Though the Prevalence of age in female children was more than male children it was not statistically significant.

Table 3: Age and sex wise distribution of epileptic children in the study.

In the Ist Group among 217 male children no child with history of epilepsy was Seen, among 283 for female one child with history of epilepsy was seen.

In the IInd Group among 283 male children, no child had a history of epilepsy, among 238 female children 4 children with history of epilepsy were seen.

In Group III among 208 male children, one child with history of epilepsy was reported and among 292 female children 8 children having a history of Epilespy were reported.

Female children (1.6%) had a higher prevalence of epilepsy than male children (0.29%) in this present study i.e. 16 female children per thousand population and 2 male children per thousand population. The overall prevalence of epilepsy in the Study sample was 1% i.e., 10 children per thousand population.

Discussion

Gingival enlargement may be viewed as a spectrum extending from idiopathic Gingival hyperplasia, in which local inflammatory factors are missing, to phenytoin induced hyperplasia in which inflammatory elements are present; to hyperplasic Inflammation seen in mouth breathers to gingivitis in pregnancy, puberty which are hormonally conditioned with increase in the inflammation and an overwhelming predominance of inflammatory elements.[3]

In the drug induced enlargement apart from the anticonvulsant drugs like phenytion sodium, sodium valproate etc, various other classes of drugs have been

Table 3: Age and sex wise distribution of epileptic children in the study.						
Groups	**Age**	**Sex**	**Child**	**Drug**	**Inflammation**	**Unknown**
	Years		**With GE**	**Induced n**	**n(%)**	**n(%)**
I	5-7	M	5	-	5(100)	-
		F	22	1	21(95.5)	-
		T	27	1(3.7)	26(96.3)	-
II	7-9	M	38	-	37(97.37)	1(2.63)
		F	33	1(3.05)	31(93.96)	1(3.05)
		T	71	1(1.41)	68(95.90)	2(2.82)
III	10-12	M	49	2(4.08)	46(93.88)	1(2.04)
		F	68	9(13.24)	58(85.29)	1(1.47)
		T	117	11(9.40)	104(88.90)	2(1.70)
	Total	M	92	2(2.14)	88(95.65)	2(2.17)
		F	123	11(8.94)	110(89.43)	2(1.63)
Grand Total			**215**	**13(6.05%)**	**198**	**4**
			(14.3%)	**(6.0%)**	**(92.09%)**	**(1.86%)**

implicated to cause gingival enlargement. Among the note worthy are the calcium channel blockers e.g; Nifedipine, verapamil etc and cyclosporine an immunosuppressant Drug, and oral contraceptive pills have also been implicated to cause gingival enlargement. Gingival enlargement may be heralded and may be the first sole diagnostic sign in Blood dyscrasias such as leukaemias.[6]

GEI was used in this study as the other two indices scored only the measured effects of phenytion induced GE and did not consider other factors for GE. Moreover Gingival enlargement index (GEI) is easy to use, easy to interpret, reliable and more Objective, less intra examiner variability.

The study evaluated the oral hygiene of the 1,500 children and found that a good majority (56.1%) had a fair (1.3-3.0) oral hygeinene scores. This study was conducted In children of low socio-economic status and it could be the possible reason behind The fair oral hygeine in this sample, which is similar with studies of Sofola OO, et al. (60%)[7] and Rao SP, et al.(80%).[8]

Out of 1,500 school children examined, 215 (14.5%) children were found to have GE was scored using GEI in different age groups, in Group I, 27(5.4%) children Were seen to have GE. Among the 27 children; 26 children had a score of Grade I and on child had a score of Grade II. In the Group II, 71 (14.2%) children had GE; 68 Children had Grade one score and 3 children had Grade II score. In the Group III, 117 (23.4%) children had GE, 97 children had Grade I score and 20 had a score of Grade II.As the age increased the prevalence of GE increased.

When the aetiology of GE was seen in the children 198 (92.09%) had inflammatory GE. The possible reasons could be the local factors such as plaque, food debris and Calculus, and low socioeconomic status.13 (6.05%) had drug induced GE, which Was similar to study of casetta I, et al[9] (6%). 4(1.86%) children had GE of unknown Aetiology.

The percentage of epileptic children in this study was 1% which was similar to the Studies of gourie-devi M, et al.[10] (0.88%) and kharti IA, et al.[11] (0.99%). 1.6% of female Children in the study have been found to have epilepsy as compared to male children 0.29 %,similar to observation made by Sridharan R, Murthy BN, [12] (0.25%).

Conclusion

In this study the prevalence of gingival enlargement (14.3%) was Predominantly inflammatory, showing that the oral hygiene status of the Children in Karnataka was far from satisfactory. The children affected with epilepsy were 10 per thousand population.31.6% Children still continue to use tooth powder despite the emphasis on usage of Fluoridated tooth paste by dental professionals.

The prevalence of GE increased with the increase of age. Though the Prevalence of GE in female children (15.1%) was more than male children (13.4%), it was not statistically significant. A total 215 (14.3%) children with GE were seen. 13 (6.05%) were drug Induced, 198 (92.09%) were of inflammatory origin and 4 (1.86%) were of Unknown etiology.

Further studies need to be undertaken regarding the prevalence if GE in School going children.

References

1. Brown LJ, Jhons BA, Wall TP. The economics of periodontal disease. Periodontol 2000 2002;29:223-34.
2. Axellsson P, Lindhe J. Effect of oral hygiene and professional tooth cleaning on gingivitis and dental caries. Community Dent Oral Epidemiol 1981;6:251-5.
3. Grant DA, Stern IB, Listgarten MA. Periodontics, 6th ed. St Louis, USA:CV Mosby Co.; 1988.
4. Bökenkamp A, Bohnhorst B, Beier C, Albers N, Offner G, Brodehl J. Nifedipine aggravates Cyclosporin A induced hyperplasia. Pediatr Nephrol 1994;8:181-5.
5. Greene JC, Vermillion JR. The Simplified Oral Hygiene Index. J Am Dent Assoc 1964;68:7-13.
6. Cooper CL, Lowen R, Shore T. Gingival hyperplasia complicating acute myeloma. J Can Dent Assoc 2000;66:78-9.
7. Sofola OO, Shaba OP, Jebodo SO. Oral hygiene and periodontal treatment needs of urban school children compared to rural school childrn of lagos state, Nigeria. Odontostomatol Trop 2003;26(101):25-9.
8. Rao SP, Bharambe MS. Dental caries and periodontal disease among urban rural and tribal school children. Indian Pediatr 1993;30(6):759-64.
9. Casetta I, Granieri E, Desiderá M, Monetti VC, Tola MR, Paolino E, Govoni V, Calura G. Phenytoin induced gingival overgrowth: A community based cross-sectionalm study in ferrara, Italy. Neuroepidemiology 1997;16(6):296-303.
10. Gouridevi M, Gururaj G, Satishchandra P, Subbakrishna DK. Prevalance of neurological disorders in bangalore, India: community based study

with a comparision between urban and rural areas. Neuroepidemiology 2004;23(6):261-8.

11. Khatri IA, Iannaccone ST, Ilyas MS, Abdullah M, Saleem S. Epidemiology of Epilepsy in pakistan. J Pak Med Assoc 2003;53(12):594-7.
12. Sridharan R, Murthy BN. Prevalence and pattern of epilepsy in India. Epilepsia 1999;23:165-75.